

**WHAT IS CLAIMED IS:**

1. A combination lock, comprising
  - a female member including a holding tube, and a rim formed at a rear end of the holding tube; the rim having two curved trenches, and a middle through hole; the holding tube having a trench formed along a whole length thereof, an elongated locating recess, and an engaging recess near to a front end;
  - a push ring arranged around the holding tube of the female member;
  - the push ring having two plate portions projecting out from respective curved trench of the female member; the push ring having two pushing projections on a front side;
  - a pushed ring arranged next to the push ring and around the holding tube of the female member; the pushed ring having a locating protrusion fitted in the elongated locating recess so as not to rotate on the holding tube; the pushed ring having curved sloping portions in contact with respective pushing projections of the push ring such that a forward pushing force is exerted on the pushed ring when the push ring is turned so as to move the pushing projections to higher ends of the sloping portions;
  - a dial arranged around the holding tube; the dial having a holding tube, and a plurality of spaced numerals on an outer side; the dial having teeth spaced out on an annular inner side, and corresponding holding

spaces of the numerals between the teeth thereof; the dial having locating notches of equal size on an annular inner side; the dial having a step-shaped portion on a front end, and a moving protrusion projecting forwards from the step-shaped portion;

- 5        a plurality of co-moving rings arranged around the holding tube of the female member; each co-moving ring having a gap on an inward edge, a rim, and two engaging blocks on the rim; a first one of the co-moving ring being held in the dial to be releaseably engaged with the teeth of the dial at the engaging blocks thereof;
- 10      locating rings arranged next to respective co-moving rings and around the holding tube of the female member; each locating ring having a locating protrusion fitted in the elongated locating recess so as not to rotate on the holding tube; each locating ring having a gap on an inward edge thereof; elastic locating elements being secured to respective
- 15      locating rings with two ends projecting out from edges of the locating rings; a first one of the locating rings being held in the dial with the gap opposing the trench of the female member, and with two ends of the elastic locating element being fitted in the locating notches of the dial;
- 20      actuating rings arranged side by side next to the dial and around respective co-moving rings as well as respective locating rings; each actuating ring having teeth spaced out on an annular inner side, holding spaces between the teeth, and locating notches of equal size on an annular inner side; each actuating ring having a first projecting portion

on a rear side, a step-shaped portion on a front side, and a second projecting portion projecting forwards from the step-shaped portion; the co-moving rings, except for the first one, being releaseably engaged with the teeth of respective actuating rings at the engaging blocks thereof so

5 as to be capable of rotating together with respective actuating rings; rotation of the dial and the actuating rings being incapable of effecting rotation of respective co-moving rings together with them when the co-moving rings are disengaged from them; the locating rings, except for the first one, being held in respective actuating rings with the gaps

10 thereof opposing the trench of the female member, and with two ends of the elastic locating elements being fitted in the locating notches of the actuating rings;

the moving protrusion of the dial being capable of coming into contact with the first projecting portion of a first one of the actuating

15 rings during a course of the dial being operated, thus making the first actuating ring turn together with the dial;

the second projecting portion of each actuating ring being capable of coming into contact with the first projecting portion of an adjacent actuating ring arranged in front of it during a course of the former

20 actuating ring being rotated, thus making the front adjacent actuating ring turn together with the rear adjacent one;

an operating body arranged on a rear side of the rim of the female member and fitted around the plate portions of the push ring for causing

the push ring to rotate together with it;

a lock rod inserted through the holding tube of the female member, and projecting out from the middle hole of the rim of the female member at a rear end; the lock rod having teeth spaced out thereon and projecting

5 out from an opening of the trench of the female member; the lock rod being secured to the operating body at the rear end thereof; the lock rod being biased forwards by a first spring;

a lock shell receiving a front portion of the holding tube of the female member, the actuating rings and the holding tube of the dial in a

10 holding room thereof, and secured to the female member; the lock shell having a holding hole perpendicular to the holding room; a second spring being disposed in the holding room for biasing the co-moving rings to a first position where the co-moving rings are disengaged from respective actuating rings; and

15 a locking insertion rod separably inserted in the holding hole of the lock shell for releaseably engaging a front end of the lock rod; a cap-equipped spring being held in the holding hole for pushing the locking insertion rod outwardly of the holding hole after the lock rod disengages the locking insertion rod;

20 whereby allowing the co-moving rings to be rotated to respective unlocking positions, in which the gaps of the co-moving rings form a passage opposing the trench of the female member for the teeth of the lock rod to pass through, by means of rotating the dial, and whereby

allowing unlocking numeral combination to be changed when the lock is in unlocking position by means of rotating the dial to change orientations of the dial and the actuating rings relative to respective co-moving rings after the operating body has been rotated so as to make the pushing

5 projections of the push ring move to higher ends of the sloping portions of the pushed ring.

2. The combination lock as claimed in claim 1, wherein the female member has a plurality of gaps on an edge thereof while the operating body has engaging protrusions opposing the rim of the female member to be fitted in respective ones of the gaps of the female member to prevent rotation of the operating body relative to the female member.

10 15 3. The combination lock as claimed in claim 1, wherein the female member has an engaging recess near to the front portion held in the lock shell while the lock shell has a pin hole; a pin being inserted through the pin hole and fitted in the engaging recess for connecting the female member to the lock shell.

20 4. The combination lock as claimed in claim 1, wherein each of the locating rings has two recesses, and a trench, which is formed between the recesses and forms an angle, while the elastic locating elements are tightly and securely fitted in respective ones of the trenches of the locating rings.

5. The combination lock as claimed in claim 1, wherein the rear end of

the lock rod has an engaging trench thereon while a pin is inserted in the operating body and fitted in the engaging trench to securely connect the lock rod to the operating body.

6. The combination lock as claimed in claim 1, wherein the lock shell  
5      has a plurality of guide trenches adjacent to the holding hole thereof while the cap of the spring provided for pushing the locking insertion rod has protrusions fitted in respective ones of the guide trenches.
7. The combination lock as claimed in claim 1, wherein an outer shell, which includes first and second parts connected together, is disposed  
10     around the lock shell.
8. The combination lock as claimed in claim 7, wherein an outer side of the outer shell is formed with a position sign, and two arrow signs respectively pointing to clockwise and counterclockwise directions.

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